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June 12th to July 25th, 1922

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Vol. 3 AUGUST, 1932 No. 5

The American Cinematographer

The Voice of the Motion Picture Cameraman of America, the men who make the pictures

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An educational and instructive publication espousing progress and art in motion picture photography while fostering the industry.

We cordially invite news articles along instructive and constructive lines of motion picture photography from our members and others active in the motion picture industry. All articles must be signed by name and address of writer.

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Modern Lenses

Super-speed Lenses

By Karl Brown, A. S. C.

Part four

NOTE—The American Cinematographer wishes to acknowledge the great assistance of Mr. C. C. Minor in furnishing data concerning super-speed lenses.

The modern cinematograph lens of the extreme aperture of F. 1.9 represents the highest advance of optical science. The production of a useful lens of this aperture presents one of the most difficult problems imaginable, and the fully corrected two inch lens of this speed has only been produced within the last six months. The world do move!

The first F. 1.9 lens was produced by Dallmeyer, and was based on the Petzval principle, the first of the high speed lenses. The lens, however, is not anastigmatic. The Dallmeyer 1.9, produced in two and three inches of focal length, does not cover the film sharply, because of curvature of field. Focused in the center of the film, it is found to fall off badly in definition toward the edges. This can be remedied in part by the use of a smaller aperture, but of course with loss of the principal value of the lens—its speed.

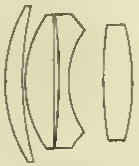

Fig. 1

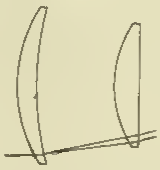

Fig. 2

The optical ransom for the extreme speed with correction is found in the first two positive lenses, they being self correcting in reference to spherical and chromatic aberration. This is demonstrated in figure 2, which shows how the dispersed rays of the first lens are corrected in nearly parallel pencils by the second lens.

Nevertheless, the Dallmeyer lens is very useful as a portrait lens. In closeup work the loss of definition toward the edges of the pictures does not make much, if any difference, and the privilege of using little light on close ups is one appreciated by both actor and cameraman. The image quality is very fine, and almost unique. Generally it is used very slightly out of focus, with excellent results.

The Dallmeyer F. 2.9 is a variation of the F. 1.9 formula, and is a more satisfactory lens from an optical standpoint. By reduction of aperture it was possible to combine correction for astigmatism with flatness of field, two features which could not be combined in the F. 1.9. The F. 1.9 represents a sacrifice of flatness of field in order to overcome astigmatism. The speed of F. 2.9, while about half that of F. 1.9, is still two points faster than the ordinary two-inch lens, so it may be classed as ultra-speed.

The development of the fully corrected F. 1.9 lens is due to the researches and ingenuity of Mr. C. C. Minor, of Los Angeles. The first lens of the anastigmat type, and of extraordinary aperture was produced by him in 1916, and was known as the Depthar, F. 2.2. Very shortly afterward, the speed was increased to F. 1.9, the new lens being the Ultrastigmat, now being produced and marketed by the Gundlach-Manhattan Optical Co., of Rochester, N. Y.

The makers of the Ultrastigmat have approached the matter of combining flatness of field with anastigmatism in a different way from the Dallmeyer. The Dallmeyer lens shows a sacrifice of flatness of field to obtain anastigmatic correction. The Ultrastigmat field is flat, and the error of astigmatism is present, but only at the very corners of the film, and is not apparent except under minute scrutiny. This amount of error varies with the focal length of the lens. In the 75 mm. lens the error is absent within the limits of the film. The 50 mm. lens, with its wider angle, shows some astigmatism in the extreme corners, and in the still wider 40 mm. size the error is correspondingly greater.

The same lens was, until recently, produced in Chicago and known as the Minor 1.9. Within the past few months, the Minor 1.9 has been considerably improved. By the use of different glasses and change of curvatures, the lens has been made to cover the entire film without loss of definition at any point. In other words, the new Minor F. 1.9 has anastigmatic flatness of field.

This lens represents the highest development of photographic objectives. The consummation of that last achievement, obtaining anastigmatic flatness of field at the aperture of F. 1.9 practically solves the problem of the super-speed lens. It is unlikely that greater speed will be attempted. It is quite possible to make lenses of greater speed—they have been produced up to the speed of F. 0.5 (or F. ½), of course not fully corrected—but the advantages to be obtained are hardly worth the sacrifice of depth of field. It is an optical principle that depth of field decreases with the increase of aperture. The depth of field at great apertures is small, and to decrease it would not compensate for the increase in exposure.

The Minor formula is based on the telephoto principle, which is peculiar in certain respects. The equivalent focus of the "two-inch" lens is two inches, and the image produced by this lens is identical in size and perspective to any other two inch lens. However, since the distance between the center of the optical system and the surface of the film is only 42 mm., the lens is equal in depth of field to an ordinary 42 mm. lens.

The last possible improvement in this lens, apochromatic correction, is now in course of development. This correction is of no importance in ordinary work. Such correction is only of value in color photography.

As cinematography advances (and it is fairly leaping forward), the need for super speed lenses will be felt more and more keenly. As it is, the lenses find their widest application on close-up work and on super-speed cameras.

In closeup work the lack of great depth of field does not matter very much. The background is bound to be lost in any event. The great advantage of an F. 1.9 in this case is the ability to reduce light. This improves the closeup by lessening eye strain for the subject, getting a more natural feeling.

The application in super speed camera work is obvious. On these cameras such a lens is a necessity, and for the type of work usually done on such cameras, the new type of lens is much the best.

The F. 1.9 lens is splendid for location night work. On such locations, it is very seldom that a cinematographer is able to get anything like the amount of light he would like to have, and is constantly forced to sacrifice effects in order to get the stuff at all. The additional exposure of an F. 1.9 lens is mighty welcome under such conditions, and often saves the cameraman the necessity of sacrificing effect for utility.

In studio lightings, the lens is particularly valuable in the case of a set using practical lights, when it is desirable to get the effect of light coming from these lights. By reducing the normal lighting so as to get an equivalent to an F. 3.5 exposure with an F. 1.9 lens stopped down slightly for depth, the relative contrast between the practical lights and their surroundings is increased, much to the advantage of the effect. In fact, the use of such a lens with super-speed film gives a better effect from an

(Continued on page 20)

Wilfred Buckland Expounds Theories

—by George Landy

Ever admire the beauty of Fairbanks Sets in the past? The man who conceived them tells how he is effecting similar results for Richard Walton Tully

A recent book on the technique of motion picture production stressed the statement that, "In art we progress from the simple to the complex"

This proposition was so entirely at variance with the writer's own idea that he hastened to get the opinion of Wilfred Buckland, one of the first art directors in the film field, and still a leader. Buckland is at present engaged on "Omar the Tentmaker," starring Guy Bates Post in the screen version, as did the play, and produced by Richard Walton Tully at the United Studios, Los Angeles.

Surely Buckland's word carries unusual authority because of his experience and standing in the film world Originally he was trained for a scientific career, but immediately upon graduating with a degree as electrical engineer at Stevens Institute, he entered the world of the theater under the famous Augustine Daly At the same time he continued his studies at Columbia University where he specialized in architecture and human anatomy—two diverse branches of knowledge which have stood him in good stead in his later work Soon Buckland became art director for several of the leading theater figures of the time, and it was while he was associated with David Belasco that he first met Tully on the production of "The Rose of the Rancho."

It was Wilfred Buckland who first brought real sets into the films and it was he also who first used groupings and backgrounds after the manner made popular on the speaking stage by Gordon Craig

Buckland's Theory

Reverting to the statement of the progress of art, Buckland refutes it with the utmost emphasis

"Rather," he says, "in art we progress from the complex to the simple. For instance, in the matter of backgrounds, which are one of the most perplexing problems in film work, we have been too prone to unit colorations and to making shots at various distances under the same conditions in this particular This is not the best way to obtain the most artistic results, in my opinion In painting a portrait the artist is very careful to use the complementary colors. If, for instance, the objects in the foreground are predominantly red and yellow, the background naturally has a blue tone, thus the painter obtains an effect that is pleasing to the eye and a complete color scheme The same results can be secured and should be secured in taking a motion picture Even though we work with monotone films, as we still do, of course, I myself have found that the use of complementary coloration is advantageous and artistic.

Illustrating a simple background for a tender love scene between Guy Bates Post (as Omar) and Virginia Brown Faire (as Shireen). Not only does the simplicity of the set element in this shot focus the attention on the action—but, if the eye should take in the background, it will be found in harmony with the sweetness and simplicity of the action. Note the absence of guadiness in the setting which might be termed "oriental."

Simple Masses and Drama

"For instance, in 'Robin Hood,' on which I was busy between the filming of 'The Masquerader' and 'Omar the Tentmaker,' I learned by experimentation that great simple masses permitted drama even in the long shots—something never before attempted The distance so simplified the background that it made the action doubly effective So in our present production we are simplifying the backgrounds and removing the mass of bric-a-brac for even the most intimate close-ups, achieving the same effect to an even better degree My own theory is that in the extreme close up not only should the background be simplified by clearing it of all extraneous objects—it should be removed entirely and a painted drop substituted Thus we get the same effect which is secured by the portrait painter for he makes his background a drop rather than a picturization of various objects, getting all his sculpturing values in the figure or figures that occupy the foreground

"Recent experiments with complementary backgrounds along the lines I have outlined here seem to prove that they possess certain vibrations and give the personages and objects in the foreground a stereoptic value far exceeding monochrome coloration I am quite sure that this will be evident to students of cinematography when they see 'Omar the Tentmaker' on the screen The general public will undoubtedly also get this effect although they will not be cognizant of the technical details involved

Art Director's Position

"One of the greatest faults in our methods of studio production is the fact that we usually overburden the art director by turning him into an architectural draughtsman who grinds out some sketches for picture after picture, often handling as many as eight or 10 productions at once It is only by permitting the art director to concentrate his energies and thoughts entirely upon a single production at a time that he can give his best to it and can conduct experiments such as those I have outlined regarding complementary coloration And it is only thus

Shireen's Garden—an example of Wilfred Buckler's art direction This set was constructed in a bleak studio corner

that we will progress along artistic lines in our films, outside of the acting itself

"Another step that will ensure every progress will come when the cinematographer and the art director realize the necessity for their closest collaboration, not only during the actual filming of a picture, but in advance preparations in the building of sets, placing of lights and planning of composition effects. Not only can they thus obtain results that will be novel and pleasing but also they will prove to heighten the dramatic values of the photoplay and force the attention on the high lights of the story itself

"On our own production of 'Omar the Tentmaker'—as in the filming of 'The Masquerader,' I admit to the possession of unusual opportunities In the first place Richard Walton Tully, the producer, and also the author of the stage play as well as the scenario, has a highly technical mind which has enabled him to secure various effects on the speaking stage, and that same ability is leading him to devising unusual methods in film production. James Young, our director, and George Benoit, our cinematographer, are recognized experts in their lines, and with the co-operation of Guy Bates Post, a star who is an artist, our daily conferences on the production bring forth many suggestions that will undoubtedly enhance the entertainment value of the picture"

Opinion of a Free Lance

The author of the following opinion is a free-lance cinematographer of Battle Creek, Mich., and recently contributed "The Cameraman in the Middle West" to the American Cinematographer.

—By R. Douglas Harrison

Local talent! What a field that covers, and does the majority of the film industry realize what it means? Also does this self-same majority realize the relationship between the two That is, between the local talent field and the motion picture industry.

From Michigan to Florida and from the Pacific to the Atlantic, individuals as well as companies are promoting this local talent idea, both with stage productions as well as local movies, with a result that within the past year, throughout the country, one company alone has coached more than 150,000 persons in their productions Can you realize what this means? This does not mean taking anyone at random off the streets, but actually choosing people who have some talent and putting them in productions, with the result that more than 150,000 people, as stated before, have taken part.

Then the point comes up, are these companies actually choosing people according to their talents or only to fill up casts as a money making idea? It has been proven that by a big majority, the former is the general rule. What must all this training of talent lead to? Must it not lead up to the training of timber to start on the rung of the ladder to keep the industry going? There must be beginners, and here is the field to choose from. This is not a theory, it is a fact! For instance, there is a lady with one of the prominent companies today who is now starring on her second feature. Three years ago, a local talent motion picture was produced in her Indiana home town, and she was picked for a part After the picture was shown, she got what was known as the "movie bug" and went to Hollywood. The result, by the simple experience of actually having appeared in a motion picture, was that she was able to obtain a small part, and when her talents were realized, she was placed in leading parts.

The day of the old fashioned amateurish show has passed. Now those taking part are picked according to their talent with which they are gifted and the result is now timber accurately trained in an unlimited field to draw from There never was a time in the history of our country that so many high schools put on high-class plays as part of their commencement activities as this year. This is significant! Therefore, cannot it be seen that with this talent coming to the fore, must this not be a new incentive for the producer to help answer the cry of the public for "new faces" This is the point, and a big one, too, and once the producer realizes it, the further advanced his products will be There must be a variety in characters exactly as in scenes, and with new talent coming up absolutely fresh, not the kind worn out on the stage, it is his logical move to grasp it while he can

The Importance of the Studio Electrician

—by Harry D. Brown

Note — Although still young in years, Brown is an authority on electrical matters. He began his activities at the age of 14, a few years before he enlisted in the American army for the war with Spain.

He built the first spectacular electric signs seen in the United States at Atlantic City in 1901. In San Francisco 12 years later, he planned and constructed for the Lincoln-Cline Electrical Advertising Company, the famous sign at Powell and Market streets. The working of this sign could be changed in two minutes by merely pressing a few buttons.

Los Angeles' first spectacular signs were Mr. Brown's creations, the animated kind showing a waving American flag or a flowing fountain. Finally he entered the electrical department at Universal City, where he remained until recently when he became manager of the electrical department at the Metro studios.

He is a deep student of electricity. He built the first portable generator. Brown at present is perfecting an electrically operated machine, the principle of which concerns radio-activity, that is expected to take an important place in the medical world, especially in the treatment of diseases of the throat and lungs.

The electrical department is the vital part of a studio It is not just an electrical department, it is an engineering division The work of the electrician is not merely the stringing of wires and the turning on and off of switches.

The electrician is the cinematographer's right hand man He is responsible for the lighting of the sets and it is light that gives chemical action on the film. Further, it is the film that is all-important

Few persons can define the word, light, without consulting a dictionary it is the studio electrician's chief working tool and to be efficient he must know about it all that is to be learned Light is the form of radiant energy that acts on the retina of the eye and renders visible the objects from which it comes, the illumination of radiance that is apprehended by the sense of vision

Facts on Light

Light moves at the rate of about 186,427 miles per second, depending somewhat upon the medium It's chief phenomena, whose existence is independent of any theory, are reflection, refraction, dispersion, interference and polarization According to the undulatory theory, now generally accepted, radiant energy is propagated in waves that vary in length, and only those that affect the eyes are known as light, the others being spoken of as dark heat, chemical rays, etc, according to the effect they are regarded as producing

Recent experiments show that electro magnetic induction is propagated in waves that have all the properties of light except that of affecting the retina, and it is thought by many that the vibrations of light are electric oscillations, not mechanical motions The old corpuscular, emission, or Newtonian theory, now abandoned, though its terms still remain in literature and affect thought, supposed the propagation of light to be an actual transfer of material particles

To the average observer, and in fact to the average person working with the apparatus, an arc light is just a piece of mechanism designed to draw an arc between two carbons and give out a lot of light. They don't know that as a matter of fact, an arc is struck by two carbons having been brought together, then opened up and a current caused to flow across a high resistance which is the air gap, heating the air to a terrific pressure, which causes the carbons to become extremely hot and to volatizem, or in other words, to give off gas

The Arc Light

A real electrician knows the why and wherefore of the principle of the arc light and of all the apparatus with which he works Only in this way can he be of real assistance to the cameraman He must be versed in the value of colors as far as photography is concerned and must know what kind of lights to adopt to obtain certain effects

For instance, red waves of light are almost totally missing in the tubes of mercury lights used in motion picture photography. The other colors are present but it requires the waves of energy causing color sensations in the optic thalamus in the brain to be present in all visible lengths combined to make pure white light These are violet, indigo, blue, green, yellow, orange and red. Take out any one of these and let the others fall on any object capable of reflecting them and the appearance given will be strange, unnatural and weird, some say ghastly, and when placed before these lights, the human face does indeed appear uncanny

An immense number of photographic experiments have been made with every kind of light, visible and invisible, with startling results Rays of all colors have been allowed to fall on surfaces of all other colors, a strange new thing in optics The resulting rare and beautiful effects have been viewed with the unaided eye, with the spectroscope and then photographed

$12 a Minute

Recently at the Metro shop, we made a lighting machine which hurls an excellent imitation of forked lightning rods into the air. The effect is obtained by burning aluminum powder under terrific pressure and ejecting it through a nozzle. It costs about $12 a minute to operate the machine, but it is well worth the money.

There is little that the electrical department is not asked to do in the matter of supplying effects and there are few times that the electricians are unable to fill the requirements

To tell all that the studio electricians are doing would be to reflect on all modern electrical inventions. They are creating all the time Dr Charles P. Steinmitz, the electrical wizard, produced recently a lightning generator which shoots a bolt carrying the energy of 1,000,000 horsepower, about one five-hundredths of the energy of natural lightning and lasting about one hundred-thousandth part of a second That was in Schenectady, New York We have made experiments along the same line right here and they have been equally successful

Workers Only

In a department of this kind, it is necessary to have perfect organization, meaning that it must be composed of men who want to work. Making them want to work is the job of the manager The latter, in addition to being capable, must also be a man in whom his men have confidence, a man who stands for what is right, who "shoots square"

Mitchell Appoints Agents in North and East

To meet the growing demand for its product, the Mitchell Camera Company has appointed eastern and northern representatives—I B. Rubinstein, 727 Seventh Avenue, New York City, and the Atlas Educational Film Company, 321 Market Street, San Francisco.

PAST

Primitive Lighting Methods in Vogue Ten Years Ago
(Photos courtesy of Universal Film Mfg Co)

FUTURE?

PRESENT

Present Day Lighting Arrangements
Note the cables and batteries of lights

The Cinema In 1932

—a prophecy

by Victor Milner, A.S.C.

Unroll ten of the years gone by Think back to the pictures of 1912—What, then, will another decade bring?

Some time ago a production, photographed in 1912 by Tony Gaudio and featuring King Baggott and Mary Pickford, was exhibited at an open meeting of the American Society of Cinematographers

Those at the meeting who viewed the picture realized that, if judged by the standards of 1912, it was nothing short of a master effort for that period The director and the players no doubt had used all the film knowledge at their command to make it their best Tony Gaudio had certainly employed everything known to the cinematographer at that time But the difference between the 1912 effort and the pictures of today stressed most forcibly the advancement which has been made in films in the past 10 years.

1932?

If so much progress has been made in the past decade, what, with the art as young as it is, are we to expect in 1932?

Will the feature of today seem in 1932 as the 1912 picture does at present?

Will we have escaped the glary artificial carbon lights 10 years from now? The players who have to work before such lights are surely to be pitied. Will, in 1932, an amazing amount of equipment still be necessary to light a set as at present? Will we be working with a sensitized emulsion much more sensitive than that of today?

Methods?

Will an antinic Mazda light, screwed in a regular socket and with the addition, perhaps, of a few "U" tubes, give us a reproduction of lights and shadows as we see them instead of the present exaggerated effect? Picture the cinematographer of 1932 using natural interiors Very often there will be no use of heavy cables and dozens of "Winfields" to run over hardwood floors

Picture an actor sitting in an easy chair, reading with a lamp at his side—how much more effective it will be if we could screw in a photographic Mazda lamp and reproduce the soft mellow color falling from the light, etc.

The man who puts himself in the position of a prophet places himself in difficulty. Possibly the writer is doing just this thing right here. But to every student of cinematography, it is more than evident that there must be changes in this art and industry which we are following in the 10 years to come just as there were in the 10 years which we have lived through

Pioneers

We, if you will permit, are the pioneers We have scratched the surface Great facts and truths remain to be dug up and uncovered. It's our task to conduct as much research, to learn as much as we possibly can about our undertaking outside of the things that are necessary for only the drawing of the pay check. After all the quality of our work governs the amount of our salary Therefore, there is a material as well as an artistic inducement to spur us on Before we cinematographers who are filming pictures today give way to young men—the writer realizes that the most of us are by no means old men as yet—you will observe changes which the writer has endeavored to outline here But in the mean time we must all work hard—very hard

The writer hopes and expects these conditions to come about, and who knows—they may be here much sooner than 1932 We are living today in an age of invention The picture today can stand a revolutionary change- The public must be given something different and naturally the A S. C is looked to, cinematographically, to lead the way.

Remember—

a wise man invests in his future

The American Cinematographer

$3 a YEAR

Big Future for American Films in Russian Field

Fertile market for picture which pays heed to Russian type of story, writes first-hand observer.

—by John Dored

EDITOR'S NOTE—This is the second of a series of articles by Dored who is stationed at Riga Latvija

Distribution paralyzed under Soviet regime; foreign productions already represented in land of snows

The eyes of the world are peering anxiously toward Russia, in the hope of re-establishing there the business conditions which have been suspended for practically seven years

We, living here at the veriest doors of Russia, see the situation very clearly, and our conviction is that as long as the Communist rule is unbroken there cannot be any chance whatsoever to do legitimate business with that country Personally, I had the misfortune to live in Bolshevik Russia for two years, during which time, as a cameraman, I travelled all over the country and saw things which convinced me that the Bolsheviks are masters of destruction and absolutely incapable of production

Red Regime

The ruin wrought by the world war was nothing compared to that brought about by the Red regime Fortunately we who are eye-witnesses of the trend of events from day to day, can see the end of Russian Bolshevism coming fast For it is not conceivable that any country that has fallen to such a depth of abject misery, that man eating has become a common thing as it has in Russia at present, where in wide areas the starvation crazed natives devour the bodies of the dead, could long endure such agony

Cinema Nationalized

The motion picture industry, along with all other branches of commerce was, of course, nationalized by the soviet organs, and all raw material, apparatus, studios, film exchanges, theatres etc., which had formerly been in private hands were utilized by the Reds for propaganda work.

The result was as soon as the old stock was exhausted or destroyed and new was not forthcoming the film industry came to a standstill Then after bringing this condition about the soviet government, seeing no further advantage in keeping the film business in its own hands, issued a new decree denationalizing the industry and is offering the theaters to private concerns and individuals

Excessive Fees

However, the fees for license, revenue taxes, rent, etc., are so exorbitant that there is little chance to run the business at a profit Furthermore, the Red government changes its decrees over night and to suit its every whim, and it has already happened many times that when a certain business has been turned over to an individual and worked up to some degree of prosperity the Bolsheviks swoop down upon it like an evil nemesis and nationalize it anew They have through these repeated confiscations of property destroyed all incentive on the part of the people to work

Outlook for Americans

When these conditions have been righted and a stable government has been established, Russia will represent a splendid field for American producers I wonder why, before the war, American producers paid so little attention to the Russian market Was it because at that time over production in business itself was as yet unknown? French organizations like Pathe, Gaumont, Eclair, etc., were heavily represented in Russia and were doing a splendid business Russia then had a great many film exchanges in all principal cities, the chief distributing point being Moscow. At that time, from 18 to 60 prints of each production were exploited While most of the pictures exploited were of foreign origin, there were a great many of Russia's own production

Poor Equipment

However, the Russian companies had poorly equipped studios and no facilities for doing good technical work Only three attempted artificial lighting, the others utilizing daylight These have, of course, been destroyed by the Reds

While the Russian pictures were decidedly inferior to the foreign product technically, they had a great advantage over the former in that they had to do with places, things, customs and themes that were familiar to the great majority of Russians

The Slavic Heart

They succeeded in reaching that somewhat strange, mystic, inscrutable and little understood Slavic heart and mind, and so they scored where in many cases the foreign picture failed For these reasons I am absolutely certain that when the time is ripe, Russia will offer a field of unlimited possibilities to the American producers who have the foresight to add to the Russian story, American perfection of technique, photography and organization, Such productions would not necessarily need to be made for Russia exclusively, for Russia, with its unlimited stretches of territory, its various climates, its many distinct nationalities offers an inexhaustible source of stories, settings and customs that will delight and interest not only Russia, but the world at large

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Standing Invitation

John M Nickolaus and S. M. Tompkins, Standard Laboratory officials, have issued a standing invitation to cinematographers and technical men to go through their new business home at Seward and Romaine streets, Hollywood, Calif The visit is worth any man's time

---

S. M. P. E. Member Promoted

Harold O'Brien, member of the Society of Motion Picture Engineers, has been appointed electrical engineer in charge of the sub-station, portable equipment and construction work at the Famous Players-Lasky studios, Los Angeles.

Frank B Good, A. S. C., has joined the staff of Jackie Coogan productions

The Editors' Corner

—conducted by Foster Goss

STATING THE CASE

Ask any motion picture fan, not interested directly in the industry, to name six cinematographers and the possibilities are that in 99 instances out of a hundred he will not he able to call the name of one, despite the notable examples where the cinematographer is given screen credit for his work.

What is the reason for this wholesale ignorance of the cinematographers' identity?

The public knows its stars, its directors and even its scenarists. It is natural that the motion picture patron should be familiar with the identity of the player whom he views on the screen. But he does not see the director nor the scenarist; yet there are directors and scenarists whose names are no less known than those of the stars themselves. Why so? Simply because such people have been accorded attention in the proper quarters off the screen.

Grant that the cinematographer is rewarded with screen credit. It may be, however, that he is given no mention in the articles or the sample advertisements in the press-book which his company distributes to the exhibitor to announce and advertise an engagement of the production in question. What happens? The names of the cast, the director and the scenarist are carried, in proportion to their importance, in the advertisements, in the "notices" submitted by the theaters to the newspapers and in the programs of the theater itself. But almost invariably the name of the cinematographer is omitted in any printed account of the film. On the other hand, the cinematographer may receive due credit in the exhibitors' press sheet for his work, yet the publicity manager or whoever writes the various theater advertisements and program "copy" may neglect to mention him.

Without consideration in the program, in the advertisement or in the newspaper notice, recognition for the cinematographer is lost in three very important quarters.

Consider another angle, probably the most important of all. Newspaper critics and reviewers of motion pictures are very busy people. Very often one critic has two, three or more features to review in a single afternoon or night. He or she may enter a theater to review a film and among other things be impressed profoundly by the photography. He may realize that credit should be bestowed on the cinematographer to whom it belongs. Among the maze of names ordinarily introduced at the beginning of a picture, however, that of the cinematographer, if present at all, may have failed to lodge itself in the reviewer's memory. When the feature ends, the critic must rush to view another vehicle or speed to his office to write the criticism of the film he has just witnessed. For proper names, the misspelling or misprinting of which justly brings forth the wrath of the names' owners, the reviewer by force of experience relies on the theater program. Go into the office of the average critic at the time he is writing his review and notice the program lying at the side of his typewriter.

What results, then, if the cinematographer's name is not included on the program? The dramatic writer does not ordinarily consume time seeking to locate a theater or exchange attache to ascertain the missing name. The excellent photography may be praised—or the poor condemned for that matter—hut the cinematographer who is responsible for it is, in the press of circumstances, ignored, and is no

more thought of by the person who reads tbe published review than the present reader, when he began this very sentence, thought of the wood-chopper who cut down the tree which made the pulp for the paper on which tbese words are printed. The foregoing rehearsal of minute details may seem trivial, but trivial causes have left their effect on the world such as the cow which kicked over the lantern whicb set fire to half of Chicago.

It has been pointed out advisedly that it is a form of box-office self-robbery and suicide for theaters and producers to ignore the cinematographer. Remove him from the picture and tbere will be no picture. Credit him for his work, give him something more to strive for, establish his identity before the public; and all concerned—bebind the screen and in front of the screen—will be benefitted.

THE FIELD IS OPEN

Had we told our grandfathers that they were some time to go forth and behold electric signs blazing at night, they would have shaken their beads doubtfully and wondered whence the children in their family inherited their foolishness.

Some time ago, aviators, engaged by Lord Northcliffe, soared over London and, with smoke manipulated from their machines, traced against the sky the name of one of the newspapers owned by the English publisher.

What would our grandfathers have said about such smoke adventures?

At present the electric sign is a universally accepted medium of advertising. But it bas lost its initial effectiveness because of the very fact that it is so generally accepted and used. Look down the metropolitan thoroughfare and behold tbe cluttered effect of the scores of signs—one's brilliance acting against the other.

What will be tbe next step in outdoor exploitation of such a nature? Will some aggressive individual be able to single out tbe most desirable downtown sites—or other locations for that matter—where he will erect screens on which be will successfully project motion pictures whose purpose are to advertise? Or will some genius surmount difficulties and project motion picture advertisements on clouds at night? The realization of sucb possibilities will open a very rich channel of cinema production, especially for tbe free lance cinematographer.

Experiments may have been made along such lines; obstacles remain —many of them.

But—

What will our grandcbildren think of such matters? Will they still be dreams, or will they be as matter-of-fact as the electric sign?

Films, like other enterprises, require foresight from within. Tbe man who peers ahead is the man wbo gets ahead. Under another division in this issue appears an article by Victor Milner, A. S. C. The foresight reflected in that article is representative of the personnel of the American Society of Cinematographers, an organization which is blazing the way for greater things in the future of motion pictures.

He who makes each day a year will live a long life even if he dies at 30.

Do all the good you can, everywhere you can, everytime you can, and tbe hereafter will take care of itself.

The Corner Stones of Motion Pictures

—by Dr. A. B. Hitchins, F R P S F R M S F C S

Dr Hitchins, director of the Ansco Research Laboratory, describes the celluloid base, the negative and the positive emulsions

The camera man, while fully acquainted with the most advanced camera technique, with laboratory methods of developing, printing, tinting and finishing, does not as a rule know as much as he would like about the raw materials of his art, and it is thought that a brief description of the three fundamentals of the moving picture—the celluloid base, the negative and positive emulsions—may be of interest for it is upon these three things that the whole of the motion picture art is built

The celluloid base upon which the emulsions are coated is a product made from cotton Specially prepared long fibered cotton is treated with a mixture of nitric and sulphuric acid, the process being termed nitration When the nitrated cotton is dry it looks but very little different from the untreated material, but during the process a very important chemical change has taken place and the cotton is now soluble in certain liquids. These are terms solvents and are usually ether, alcohol, fusel oil, butyl alcohol or ethyl acetate When the nitrated cotton is dissolved in a suitable solvent mixture a thick viscous mass results which looks very much like strained honey This is known as "dope" In order to make the sheet celluloid from the dope this material is stored in glass enameled containers which are piped to a special machine known as the casting machine The casting machine for making celluloid is a remarkable piece of engineering and it would be impossible to describe fully the mechanical details of such a machine in a short article, but in general principle it consists of a gigantic wheel 40 or 50 inches wide, which is nickel plated and burnished to a mirror-like surface The circumference of the wheel is about 50 feet Suspended above this wheel over its full width and in such a manner as to be adjustable with reference to the wheel surface, is a hopper or container having very finely adjustable jaws The dope is led from the containing tanks into this hopper and flows out through the jaws in a fine sheet on to the wheel surface which is moving slowly but continuously forward, drawing out upon the surface of the wheel a thin layer of the viscous material During the revolution of the wheel the solvents are evaporated leaving behind the familiar sheet celluloid. By the time the wheel has completed its revolution the celluloid is ready to strip from the surface and is then led over a series of drying drums to bring about a thorough curing and to dispel the balance of the solvents The usual thickness of moving picture celluloid base is 005 of an inch, and it must be as clear as glass and have great tensile strength in order to withstand the wear and tear of projection The celluloid is usually made in rolls two thousand (2000) feet long and forty-three (43) inches wide An elaborate system of testing is necessary to maintain the qualities necessary for moving picture base Continuous tests are made of tensile strength, elasticity, shrink, stretch and thickness. During the process of manufacture a solution is applied to one side of the celluloid. This is called the "sub," and its purpose is to form a bond or union between the celluloid base and the photographic emulsion This is necessary in order to prevent the emulsion frilling or slipping off from the base during the photographic processes Test strips of all celluloid made are cut into motion picture width and run through a special projector head for determining the performance under actual projecting conditions Having obtained the large rolls of finished celluloid base the next step is to apply the photographic emulsion

Photographic emulsions are the basis of all photographic procedure They are the light sensitive materials upon which the photographic image is formed, and are made from silver Silver nitrate, when combined with potassium or sodium bromide, reacts forming silver bromide This is the light sensitive material The chemical action is made to take place in the presence of an emulsifying medium, usually gelatine, which controls the formation of the silver bromide, rendering it exceptionally fine and uniform — hence the term emulsion, for while in the liquid state it looks very much like milk Suitable heating conditions are necessary for ripening the emulsion when made The emulsion is put together in large glass-lined jacketed kettles and the utmost care is necessary to insure uniform mixing and digesting conditions day by day, for the photographic quality is dependent entirely upon the method of putting together At the completion of various mixing and digesting processes the emulsion is drawn off into jars and set in a chill room, becoming a firm jelly. This jelly is chopped up into fine shreds and washed in running water in order to get rid of the soluble products of chemical reaction After washing the emulsion shreds are melted up and the emulsion is then ready for coating upon the celluloid base

Plate or Film, M. P. Neg.
Developed 2½-5 minutes at 65 degrees F.
Inertia, .14. Speed, 243.

Development Factor, .36.
Fog density, .090—.112.
Date, 7-12-22.
Emulsion No. 2009.

CANDLE—METER—SECONDS

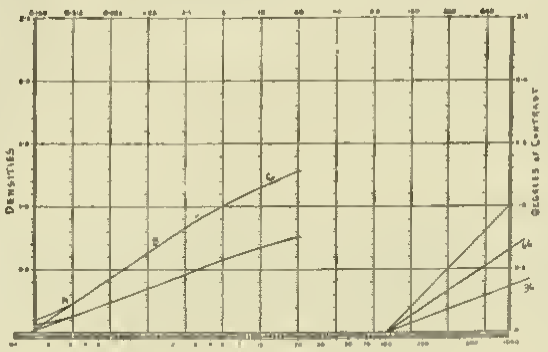


Fig. 1—Inertia Scale

The machinery used for coating celluloid is highly specialized equipment and reduced to its simplest terms functions as follows: The front or head end of the machine has fittings for carrying the big roll of uncoated celluloid. From this shaft the celluloid is led over a series of tension rollers one of which dips in a pan which holds the previously melted emulsion As the celluloid passed around this roller the emulsion is picked up and evenly coated upon the base The coated material is then passed through a long chill box which sets the gelatine bromide emulsion to a solid state The coated stock then passes down a long drying alley in a series of loops finally being wound up at the end of the machine ready for slitting into moving picture width Each coating machine is a separate unit enclosed in an alley which is sealed against all outside air, the only air admitted being properly refrigerated and conditioned, having been previously washed and freed from dust There are means provided for controlling the temperature of the air at different sec-

tions of the alley so as to insure the film being perfectly dry by the time it reaches the windup roll. When so coated the complete article is moving picture film in the underexposed condition. When light falls upon a photographic emulsion through a lens or by printing there is, of course, no visible change, but a latent or invisible image is formed which can be developed or made visible by the action of the developing solution.

The two emulsions used in the production of motion pictures are entirely different in character.

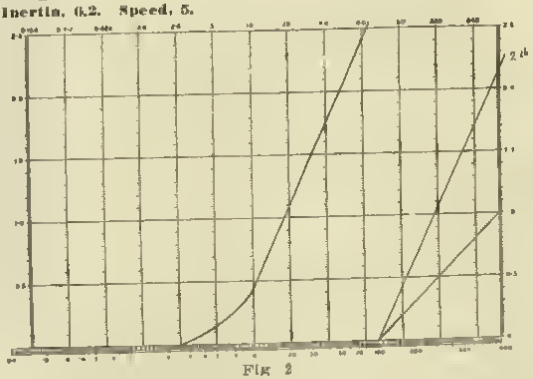
The negative emulsion must be exceedingly rapid and capable of rendering all the details of the objects photographed and must have a wide latitude in exposure. It must not develop to a very strong degree of contrast, otherwise some of the fine highlight detail would be blocked up.

The positive emulsion is about 45 times slower than the negative and must be capable of yielding a rich photographic image. In photographic terms it must have contrast and be capable of developing to a strong black. This quality is necessary in order to produce proper projection or screen value.

The production of celluloid base and the two essential photographic emulsions call for a great deal of scientific knowledge, for the manufacture of photographic materials is really a branch of applied chemistry and physics, and it is only by continual vigilance, efficient testing and plant control methods that material of proper character and uniformity can be produced day by day. The positive and negative emulsions, when coated, are tested for their photographic quality by the Hunter & Driffield system. This system is based upon a very intricate set of chemical, physical and mathematical factors, but the following short description may be of interest.

The emulsion to be tested is cut into strips 4 inches by 1 inch. A special plateholder is used taking two of these strips side by side. They are exposed in an instrument called a sensitometer. This consists of a rotating sector wheel having angular openings increasing in geometric ratio. The two strips of emulsion are exposed behind this wheel to a standard light source which has been calibrated to a standard candle burnt at one metsr distance from the emulsion surface. The resulting negative is a series of densities stepping up in proportion to the geometric exposure. One of the two strips which have been exposed together is developed for twice the time of the other and the resulting density steps are read upon an instrument called a photometer which gives a direct reading of density or amount of silver reduced per unit area. These density readings are then plotted on a special chart in the form of a curve. The curve obtained is known as the characteristic emulsion curve. Under ordinary conditions of exposure the curve consists of three periods (See Fig 1). The toe or concave portion (A), the straight-line portion (B), and the shoulder or convex portion (C). The period (A) corresponds to underexposure, the straight-line portion (B) to correct exposure, and (C) to overexposure. In order to determine the speed of an emulsion, the straight-line portion is prolonged until it cuts the lower scale. This is termed the inertia scale. The top scale is expressed in exposures in candle meter seconds. Since correct exposure is dependent upon latitude, it will be seen that the longer the straight line portion of any emulsion the better its rendering power. Fig. 1 is characteristic of motion picture negative film, and Fig. 2 of positive film. A line drawn parallel with the straight line portion of the curve is plotted from a point on the inertia scale until it cuts the right-hand scale of contrasts. This shows graphically the degree of contrast for any given time of development and it will be seen from a comparison of the negative and positive curves that the two emulsions are entirely different in character—the negative being low in contrast with the great speed; the positive high in contrast and of slow speed. The strips from which these density curves are obtained are developed under very exacting conditions. An electrically controlled thermostat or water bath is used for maintaining the developing solutions at constant temperature, the utmost precision being necessary in order to produce reliable readings. Tests similar to those shown in the illustrations are made at frequent intervals throughout each day's coating providing a record in black and white of the photographic quality of the material being made. It would be practically impossible to maintain uniform photographic emulsions without the Hurter & Driffield system of determining emulsion quality, and in experimental work its use is obvious. In order to provide for the cameraman materials upon which he can rely, this continual vigilance and care is necessary, and while it makes the manufacture of photographic materials difficult, yet there is no more fascinating branch of applied chemistry and physics.

Plate or Film, M. P. Positive.
Developer, M-Q.
Developed 5 minutes at 68 degrees F.
Inertia, 6.2. Speed, 5.



Development Factor, 2.16.
Fog density, .020.
Date, 7-10-22.
Emulsion No. 1042.

Fig 2

EDITOR'S NOTE — Dr. Hitchens, an international authority on photography and its allied branches, will contribute an article on "Studio Lighting" in the September issue of the American Cinematographer. Dr. Hitchens is a recognized leader in this country and abroad in research work and has various film products to the credit of his genius.

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ANNOUNCING

EASTERN HEADQUARTERS
OF THE AMERICAN CINEMATOGRAPHER

In line with the expansion of the American Cinematographer into a national monthly publication, announcement herehy is made of the appointment of Mr. Rudolph Miehling as eastern representative of the American Cinematographer.

Friends of this magazine in the East will he accorded every courtesy and attention at the eastern headquarters just as they have heen in the past at the home offices in Los Angeles.

With Mr. Miehling in charge, the eastern offices are already opened at Suite 1107, 522 Fifth Avenue, New York City.

That Battle is in Full Swing!

The Subscription Battle, of course

Done your bit? What's the difficulty if you haven't?

Remember that a suhscription to the American Cinematographer is an investment for the cinematographer or layman alike—just like owning your own home. If you don't own your own home, you can own a copy of the American Cinematographer each month—for less than one cent a day.

One hundred and fifteen new suhscriptions were turned in hy several A. S. C. memhers at a recent open meeting.

Van Trees heads the list with 41, and John Arnold is pressing him closely for second honors.

Everyone who is interested in motion pictures, will be interested in the American Cinematographer when it is called to his or her attention.

Readers—if you live in Alaska or England— do your friends a favor! tell them ahout the American Cinematographer's suhscription rate. They'll thank you once they've subscribed.

The American Cinematographer—

Herewith find $3.00 to pay for one year's subscription to The American Cinematographer, subscription to begin with the issue of . . . . . , 1922

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Foresee Wider Use of Non-Theatrical Films

Mitchell camera chiefs believe non-theatrical will eventually outstrip theatrical production

Production for theatres will continue to increase, however, maintain Mitchell and Boeger

An increase in non-theatrical uses of motion pictures until such usage hy far exceeds theatrical application of the cinema is foreseen hy George A. Mitchell, perfector of the camera which hears his name At the same time, Mr Mitchell anticipates a growing demand for theatrical mo

GEO A MITCHELL,
Perfector,
Mitchell Camera

tion pictures, the maximum production of which will not, he believes, he attained wlthln the next few years.

The decade lying immedistely ahead, however, will he distinguished by the adoptlon of films in channels on a scale which will make the non-theatrical consumption of the cinema equal, if not exceed, the theatrical production at the end of the 10-year period, according to Mitchell

For Industry and Education

Primarily, these increased uses will spread along educational and industrial lines Visual education will ahsorh an output of production which will he nothing short of amazing, if adjudged from present standards, Mitchell helieves He malntains that it will be only a matter of time before smaller colleges and similar schools adopt the cinema as a means of instructlon in such studies as engineering, chemistry or phyelcs

"Colleges," Mitchell said recently, "maintain expensive machines for the crushing of metals for experimental purposes for tbe studenta Tbe smaller schools cannot afford such machinery. If the student wants to know anything ebont such experimenta, he must read ebout them Do you see the value of films if the process is visualized before the student? In considering the production of motion pictures on chemical experiments, to be exhihited before classes, an objection arises because of the inability of pictures to reproduce colors which are of major importence in certain experiments But we must remember that color photography is hy no means an impossihility."

Theatrical Production Prevails

Henry F Boeger, whose energies comhined with those of Mitchell has resulted in tbeir organization becoming one of the foremost of its kind in the world, pointed out that the preponderance of motion picture production at present is for theatrical or amusement purposes This, he said, is parallel to the status of the automohlie 20 years ago when it was generally accepted that the invention was fit for amusement only As the automohile has hecome an inseparable factor in the present economic scheme, so the cinema will take its place in educatlon as well as industry. Boeger mentioned the institution of motion picture departments in varlous universities and the establishment of schools for the instruction of cinematographers as current indications of a more general use of films in the future.

School Exchange

Both Mitchell and Boeger helieve that a system will he arranged eventually among colleges and universities wherehy there will he a mutual exchange of instructive films which, possihly, may he produced under the supervision of the varions faculties. Neither expects that an increased use of non-theatrical flims will have eny appreclable effect on theatrical production; on the controry, both belleve that a wider non-theatrical application will serve to create a greater critical interest among audiences who as a consequence will hetter appreciate the artistry of the effort designed for theatrical purposes.

New Industrial Camera

That Mitchell and Boeger heve the strength of their convictions is evinced by the fact that they have spent months and a small fortune in research which has resulted in the perfection and marketing of the Mitchell industrial model camera, which is designed for industrial and educa-

HENRY F BOEGER
Presidant
Mitchell Camera Co

tional use, hut which, if supplied with the firm's accessories, serves in the same capacity as the studio model.

Georges Benoit, A. S. C., is engrossed in the task of making the photography in the Richard Walton Tully production, "Omar the Tentmaker," even greater than that in "The Masquerader." Work is progressing at the United Studios.

The Old and the New in Laboratories

By John M. Nickolaus

Nickolaus was one of the nurses in attendance at the birth of the motion picture industry. He has seen the child, born in poverty and squalid surroundings, grow into the young giant of today. He has written for The American Cinematographer a story contrasting the primitive laboratory methods of the early days with present conditions. He is now vice president of the Standard Film Laboratories, one of the most modern and highly developed plants in the industry. He has designed and built seven different laboratories.

A producer friend of mine I have known for many years said the other day "Nick, why is it when I want to get you at night I always have to call the laboratory? Don't you ever spend an evening at home?"

I replied "If it were 15 years ago I would have the alibi that I was 'shooting trouble', that is, tinkering with the machinery so we could get out our quota of work the next day The only excuse I have today for spending nearly every evening at the plant is that I like to watch the wheels go 'round and think what a soft time we have now, compared to our experiences some 18 years ago when people were beginning to marvel at the novelty of motion pictures"

When I say we have a soft time nowadays, I mean just that Those who have taken up film laboratory work within the past few years have no conception of the primitive methods, the make-shift machinary, and the actual hardships we pioneer laboratory men had to put up with

JOHN M. NICKOLAUS

First Plant

The first plant in which I had any experience—that was in Philadelphia 18 years ago, and I was chief camera and laboratory man there—wasn't worth as much in its entirety as one modern printing machine costs now The Standard Film Laboratories today represents a capital investment of $350,000 That amount would have financed all the laboratories in existance 18 years ago, with enough left over to carry most of the producing organizations

In the early days—not the "good old days," from the laboratory man's point of view—we had absolutely nothing to work with We had to devise all our own equipment That first plant in which I worked had been a small cigar box factory As it could be used for little else, we made a film laboratory out of it We did all our developing in small trays We would pour in 15 or 20 gallons of developing solution, lay the negative in it, and then rock the trays back and forth by hand

Capital, $500

This company was organized by two bartenders and a pickle manufacturer, with a total capital of $500 Single productions were made for $200 When I tried to get the President of the company to buy me two or three new developing tanks for the dark room, he asked me what they would cost, and when I told him about $35 a piece, he almost had apoplexy Today the apparatus we designed for controlling the temperature and humidity of the air and washing it thoroughly before it enters any of our workrooms costs a small fortune, a sum many times larger than the entire investment in any of the original laboratories.

Early Drying Methods

Frequently we had to resort to hanging quantities of film out of doors to dry, as if it were the family washing. Besides collecting dust and dirt when it was still wet, this film, when thoroughly dry, was often so brittle and curled up that it would crack in one's hand Film handled under these conditions had a very short life, and sometimes could scarcely be used at all Today our drying room is supplied exclusively with air that is automatically conditioned and absolutely clean We take an hour for drying negative while we dry positive in 20 minutes This preserves the vitality of the film and keeps it as soft and pliable as when it comes from the factory The temperature and humidity differ in the various departments of our plant, particularly in the developing rooms for positive and negative film, because of the difference in the stock

The early laboratories delivered release prints to the exchanges with only about 40 per cent of the vitality left in the film This was due to the crude methods of developing, printing and drying With our present day system and our modern equipment we are able to retain 100 per cent of the film's vitality or wearing quality, doing this not on occasional jobs, but on every order we turn out This means a great deal to distributing organizations, for their release prints last much longer and are much clearer when thrown on the screen

Sight Testing

We used to test all film by sight, a slipshod method for such important work Now this is done by machines which can't make a mistake We used to depend upon the municipal water system for washing film If a water pipe broke and the supply was contaminated, or if, in rainy weather, the water became full of sediment, as frequently happens, the film had to suffer Now every drop of water used in our plant is carefully filtered.

The early laboratories that could turn out 20,000 feet of film in a week were working beyond their usual capacity Any laboratory today that isn't turning out a million feet a week is a pretty small concern A million feet can be handled now with less trouble than 20,000 feet could in those days

In the first crude laboratory in which I worked we had one old Snyder perforator, which punched two holes at a time, sometimes doing it accurately The weekly capacity of this machine, working 24 hours a day and seven days a week was 28,000 feet. Our machines today, in every branch of film laboratory work, are almost human They leave little chance for error.

Dust Storms Meant Trouble

A dust storm used to cause a great deal of delay, worry and expense in every laboratory Dust and dirt would sift into the various work rooms and stick to the wet film, in spite of all we could do to prevent it. We would sometimes stop work for several days during such disturbances, but even than, when we started again, there was dust over everything in the plant

I recently won a wager with a visitor to the Standard

(Continued on page 30)

Cinema Conditions In Great Britain

—by Chas. van Enger A. S. C.

Filming London streets and Trafalgar Square—Cambridge shot for first time in history—English are polite

Having recently travelled to England as cinematographer with the Goldwyn company filming "The Christian," I have been asked repeatedly about photographic conditions in that country

In the first place, the producing end of the motion picture industry is not taken seriously by anyone outside the business—it is considered something like selling shoestrings In other words, the description, "in its infancy," really applies over there People who think that time is wasted over here in waiting for various needful things, should work over there It is almost impossible to shoot

The surface marks of generations of environment are visible in this photograph, taken during the filming of a scene for "The Christian" in the London slums. Note the clothes lines in the "front yards" the obsolete gas lamp-post; the rickety picket fences; and the ivy on the aging brick walls. A motion picture camera in London streets is always a sign for crowds to collect.

scenes in the streets of London because of the crowds They gather immediately upon the company's arrival at a location, and begin to get in the way even when one is trying to find the camera angle, or sometimes before the camera is out of the car We had to shoot one Limehouse setting at 5 o'clock in the morning to get away from the curious crowds

However, all the people are very nice and obliging, and assisted us in every way they could, even to giving us permission to use 2000 people, 20 sunlight arcs and six power wagons in their beloved Trafalgar square all night, and allowing us to use one of the beautiful courtyards and cloisters of Cambridge university, where the prince of Wales and all the royalty are educated The university was built hundreds of years before the discovery of America, and it is the first time in history that motion pictures have been made within its walls. Maybe they were "bowled over" by our nerve in asking, and gave permission before they recovered

We were taking some scenes in a car, and we turned in the middle of the block in the center of the business district. The "bobby" stopped all the traffic to let us turn, and was very nice about it. At the time, I wondered what a Los Angeles or New York "cop" would have said if we tried it on Broadway.

London is a wonderful place for locations, and it would be heaven for a serial director on that account The country around London is beautiful, and you can shoot any place you set up your camera The light is very actinic and when I first started the laboratory kept telling me "too much time," so I shot most of my stuff at F 11 In London there is a pall of smoke hanging in the air at all times, and it is next to impossible to shoot against the light I know very well because I tried it by carrying a Mitchell outfit to the top of St Paul's cathedral—over 250 feet—to get a panoramic view of the city

Much to my disappointment, I did not get a chance to visit any of the studios in England We had wonderful weather, and only once was J Pluvius bad to us, and that was the night at Trafalgar Square We had planned to shoot our first scene at 1 a m., so as to avoid the crowds I guess one of the 2000 people let out the secret, and it got into the papers that the event was coming off, so that Mr J P read it and tried to "do his stuff" to help us along, as everybody else was doing He sent us some of his best downpours just as we started the first scene, and it kept raining as hard as I ever saw it until we finished at 6 30 next morning, and as I fell into bed at 7:30, the sun came out

Sky-hooks Are Good

Says Frank B Good

Frank B Good, A S C, claims to be the only person on record for whom the well-known expression, "get the sky-hooks" was carried into effect

At North Island, near San Diego, recently, Good was endeavoring to film a polo match, but an ominous cloud insisted on obscuring the light-giving brilliance of the California sun He mentioned his complaint to several army aviators who were present to attend the match and whose aeroplanes were parked nearby

Immediately six aircraft ascended Soon they were flying partially concealed within the cloud itself The propellors churned industriously and—in five minutes not a suggestion of the original cloud remained Whereupon an unhampered sun assisted Frank film the polo match

Now it is rumored that Frank has been made an offer by suffering farmers to go to a drought-striken section of Canada with a detachment of double-propeller planes to squeeze rain out of clouds

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THE BELOVED MOVIE

The nacheral state of the movie business is to be picked on Whenever nobody aint got nothin' else to do they seems to figure the best way to put in their time is to roast the movies Most everybody at some time or 'nother has had a little flyer at this sport, includin' certain misguided individuals of the game itself.

It's the same old thing The movies has been a target ever sintce it started

First off, after it realy got started, long back in 'bout 1910, the stage business got scared of competishun and started rappin' 'em on acct of bein' crude and lowbrow Pretty soon these parties found out that there was dough in the movie game—so they climbed on the hand wagon and burnad the hammar.

This made the authors sore There was a awful yelp delivered in nine jointed words, long about 1915 sayin' the movies was crude and lowbrow The flow of high priced metafore and estbettic crabbin' kept up until the 'remanant authors" discovered that they could make more jack writin' for the movies than against 'em

For a while it looked like everything was as comfortable as a fisherman's cat Things slid along smoothe as goose grease—in fact too darn smooth. Y' see, there's a certain class of people which think that just because they're flivs in every sentce of the word, that nobody else has any right to get along These eggs is commonly known as raformers

Probably the best thing to he said in favor of the motion picture industry is the fackt that the reformers is against it.

A careful look at these parties is enough to predjudice anyone in favor of the movies.

What class of ministers raves from the pulpit about the degraydashun of the movies? Them what never goes to movies—them what has never seen a movie studio—them what has never met anybody ever connected with the movies All thera opinyuns is cribbed direct from the yellow noospapers which aint got a chance to get by except with sensasyshionalism

What women's clubs, and reform societies rares up and screams about tha immoral influence of the movies? Them whose members is sensasshon seeking people whose idee of a perfect afternoon is to attend a dirty divorce trial

Who screams most loudly about the degrayding influence of the movies on children? Them reformers which is too busy damning evarything plaasant to have children

What writers is it which writes pages about Hollywood vice? Them which has never seen Hollywood—or they coodent have writ such things

The enemies of the movies is just plain jealous

A certain senator, supposed to be an American, deplores the fact that some of the successful movie people was formerly in humble circumstancas He thinks it aint right that a person who wuz humble and poor onct should work up to he so successful Accordin' to that Aha Lincoln wud a heen a wood-chopper all his life That's the true spirit of democrscy, aint it? A fine example of Americanism!

A lot of folks in Washington and elsewhera got sore because we was able to get Will Hays to boss the job Just plain jellousy! Thay wouldn t bava thought it half so bad if they had been offared the job—and the salary.

Noslr! It's just jellousy throughout And the best way to judge the standing of tha movies is to investigate the charakter of it's critics That'll tall the whola story!

Latitude in printing is dependent upon film quality or scale of gradation. The most difficult negatives—those with a long range of tones from brilliant highlights to deep shadows—are easily registered, tone for tone, and with latitude to spare on

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The Old and the New in Laboratories

(Continued from page 16)

Film Laboratories He was incredulous when I told him we were not bothered at all by wind storms I finally bet him that he couldn't throw a handful of dust in through one of our windows. He tried it and got the dust right back in his face. I then explained to him that the air throughout our plant is kept under a constant pressure so that it is impossible for dust to come in

Film Almost Froze, Too!

These reminiscences recall something that happened years ago to Harry McGuire, now a prominent cinematographer, who was then the dark room man in a crude little laboratory back in Bayonne, N J It was an unusually cold winter and in spite of a small coal stove in the center of the developing room, the floor was covered with ice. McGuire was working away here one night, half frozen, when he slipped on the ice, fell, and broke his nose It was anything but amusing to him at the time, but it is interesting to contrast the conditions under which we worked then and the conditions now existing in a modern laboratory I don't understand why we didn't all die of pneumonia from having our clothes wet in all kinds of weather

The Present

Whenever I think I am having trouble nowadays, I walk through our clean, well-lighted plant, with its ideal working conditions, with all its splendid equipment, which includes every conceivable device for facilitating our work, and then think of those pioneer days when we had nothing but our boundless faith in the future of motion pictures. Troubles? We modern laboratory men don't know what trouble is!

Modern Lenses

(Continued from page 4)

incandescent light placed in a lamp, to simulate lamp light, than with an ordinary lens and film, and the lamp lighted with a baby arc. The effect is not only better, but all mechanical trouble of trimming, not to mention the smoke nuisance, is eliminated

The old F 4.5 lenses were rendered obsolete by the faster F. 3.5 lenses, and it seems likely that the same thing may happen to the present lenses by the introduction of the newly corrected F 1.9 The super-speed lenses are certainly equal in every way to the slower lenses, and there seems to be no reason why they should not become the standard, every-day utility lens

---

Ernest S Palmer, A. S C, is in London, England, on personal business He expects to return shortly

---

Jack MacKenzie, A. S C., is photographing "Thelma," starring Jane Novak

---

John Seitz, A. S C, is finishing Rex Ingram's "The Black Orchid"

Norbert Brodin, A S C, is filming "The Voice from the Minaret," starring Norma Talmadge, at United Studios

---

Harry Fowler, A S C, is working with Joe Rock in the filming of "Ala Baba and the Forty Thieves"

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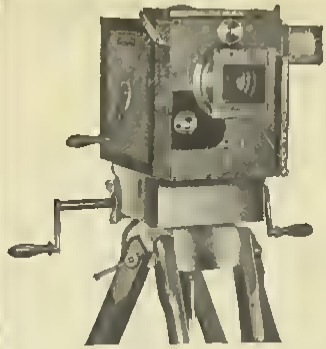

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CAMERA MEN, GET ACQUAINTED

Short & Sharp, Camera Sharks Are Added to A. S. C. Roster

NOT A VAUDEVILLE TEAM

Henry Sharp and Don D Short have been elected members of the American Society of Cinematographers, according to an announcement by the board of governors.

As a cinematographer, Sharp is everything that his name implies. His films always develop very "sharp," and in the matter of cinematographic "sharpness," Sharp is an ace in the game.

A Sharp Shark

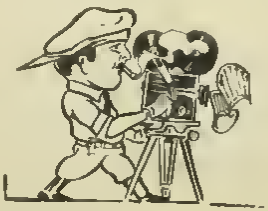
An examination of his record will establish that fact. For instance—"Homespun Folke," "Bean Revel," "Lying Lips" (with Charles Stumar), "Mother O' Mine," and "Hail the Woman" all testify to his ability as a cinematographer as will his coming releases "Jim," "Lorna Doone" and "Someone to Love." Always a keen chap, Sharp began his picture career with the Thomas Dixon Company as assistant cinematographer and laboratory worker. Since he has been connected with Paramount, Corona Cinema Company and Triangle. Four years ago he started with Thomas H. Ince and has been with that organization without missing a day during that period. For three years he has been first cameraman and as such has shot nothing but all star productions.

Short's Sharp, Too

As "short" as his name is, that's how "long" Don D Short is in film ability. Though his name is Short, Don's career has been long with achievements as becomes evident when such productions, filmed by him, are recalled — The Little Shepherd of Kingdom Come," "The Penalty," "Just Out of College," "Don't Neglect Your Wife," "The Ace of Hearts," "The Night Rose," "Gleam O' Dawn," "The Hidden Spring," "Calverts Valley," "The Devil Within," "The Fast Mail," "When Iron Turns to Gold," "Strange Gods or Strange Idols," and "Oath Bound."

A Short Life

Though his life to date is short, Short has lived a lifetime of thrills and dangers already. As an instance—one day he spent four and one-half hours in the air photographing speed boats from a navy hydroplane as a part of Dustin Farnum's "Oath Bound" for Fox, with which organization Short is affiliated at present. In getting the chase scenes it was necessary to lash the camera to a block on the bow of Farnum's "Miss Los Angeles." Suddenly, Short, in his cramped position, became numb, lost his hold in the boat, and only the quick action of Director Durning prevented Short's life from becoming shorter than it is at present.



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Bull Fighting In Mexico

NOT A NURSERY GAME

A forthcoming Paramount production will bear an epoch-making episode on bull-fighting as the result of Guy Wilky's cinematographic abilities which asserted themselves during the course of a trip to Mexico City for the purpose of recording first-hand film information on the Southern republic's national pastime

Like all Americans, Wilky had to fight the Mexican manana spirit before he arrived at such a point where he could actually start grinding his camera on bulls in action.

After he had visited the proper authorities and made known his purpose, the A. S C ace was given the neces sary permission to proceed, but again struck a snag be cause of the rights of the advertisers who held advertis ing space on the walls of the arana The signs had to be either covered up or taken down, and extensive parleying brought about an arrangement which permitted actual filming to proceed.

Platforms Built

A day was required to build the platforms and to set the tripods on them after they had been built

Then the bull-battle was begun

The cameras in Wilky's charge caught six fights. Guy asserts that all the trouble which he had undergone was repaid in the celluloid record that was made of the afternoon's slaughter American prizefights were bean-bag games by comparison

A bull ripped a horse asunder within twenty feet of the camera That was not enough for the bull-fighting gentlemen present, later in the day they stuffed the carcass of the horse with sawdust and shoved it into the arena to tease the bulls

One Bull—Two Horses

One bull, as an average, killed two horses before the more aggressive beast was himself disposed of The horses were half-starved creatures, unable to defend themselves at the best.

On one occasion, an infuriated bull leaped into a spectators' box and charged the occupants, grazing the neck of an old millionaire spectator whose condition, at the time Wilky left Mexico, was still serious.

Peculiar Bravery

Guy relates of the peculiar sense of courage on the part of the matador, whose duty it is to dispose of the bull after its maddened antics have been construed to have sufficiently amused the audiences One matador was caught unawares and seriously injured, evidently internally Attaches of the ring sought to prevent him from returning to the arena In turn, when he insisted on going forth again, the spectators, almost as a body, called to him to discontinue his deeds for the day, shouting that he had more than proved his courage But the matador persisted, engaged the bull and made away with him The impact, which caused this particular matador's injuries, was captured by the camera—the bull-fighter tossed into the air while the maddened bull pawed the ground at the starting point of his tormentor's ascent.

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CHEAT DEATH TWICE

IN NORTHWEST JAUNT

Rudolph Bergquist, A S C, and Charles Hunt, assistant director, have returned to the Metro studios after making a 4500 mile trip to the Canadian border, including a 2000 mile jaunt through the lumber camp trails of Washington, Oregon, Northern California, Montana and Idaho They

RUDOLPH J BERGQUIST

brought with them photographs of waterfalls and rapids to be used as locations for the filming of important scenes of the S L (Sawyer-Luhin) production of "Quincy Adams Sawyer" for Metro They also brought additional gray hairs, for twice the Columbia river was cheated in its attempt to take their lives.

Skid in Bad Place

It was near Sand Point on the Columbia river in Idaho that their careers almost came to an abrupt end Their chartered automobile was large, and attached to the back was a sort of iron rack on which they packed their camping equipment. It was this that saved them The heavy rain of a few days before had made the ill kept mountain roads treacherous—they could hardly be called roads, for their use solely was for hauling logs Making a rather sharp turn, the machine skidded and headed down a 3000 foot descent It was a slide down which logs were sent to the river.

Trunk Saves Lives

Unconsciously, Bergquist, who was piloting the car, jammed on the emergency brakes Just as the car began to gather momentum, it stopped with a jolt that threw both men forward The steering wheel stopped Bergquist, but Hunt's shoulder crashed against the windshield. They had been saved by a tree trunk, which caught in the framework of the carryall. With the aid of horses, the machine was pulled back onto the road.

Log Is Bad Actor

Returning toward Portland, they kept as close to the Columbia as possible, for it was there that they shot most of the 16,000 feet of film and 150 "stills" that comprised the result of their efforts. Not far from The Dalles, Oregon, they set up their camera on a rock about ten feet from shore. It was just above the rapids and falls and the swift water alternately rose and ebbed. While Bergquist was cranking, an eighteen-inch log, which had been

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reeting at the water's edge several rods upstream, was caught in the current and bore crashing down at them.

Lose Cases

Bergquist did not see the water soaked ram until Hunt shouted Both headed for shore, jumping from rock to rock, Bergquist carrying the camera The camera cases left behind, were swept away as the log came rushing by.

In all, thirty-four waterfalls were photographed during the twelve days Many times with a rope bound around his body beneath his arms, Bergquist waded out into the water, chest deep, and took pictures with his graflex, while Hunt, on shore, held the other end of the rope.

"And those were not all of our troubles," said Bergquist in telling of the trip "We covered a lot of territory that hadn't seen an automobile for ages We often had to jack up the front wheels in order to get the machine over a fallen tree trunk In Idaho we lived three days on canned beans"

Downing Discusses

Eugene Downing, of the Downing laboratories, appeared before the A. S. C. open meeting on July 10th and, in conjunction with the exhibition of sample film, discussed motion picture laboratory work.

Hays Knows His Business

In a letter addressed to Phillip H. Whitman, secretary A. S. C, Roy F Overbaugh, A S C, who at present is in New York as cinematographer with the Richard Barthelmess company, writes in part:

"While photographing Mr Will Hays and Postmaster General Work a few weeks ago, Mr Hays expressed the opinion that a cinematographer held a position of the utmost importance, and earned every cent he was paid. I thought this might be of interest in view of the present disposition to cut salaries."

And the Sheik Shrieked

Homer Scott, A S C, is photographing the comedy, "The Shriek," at the Sennett studios Ben Turpin is all eyes in the picture and makes love with his orbits only At that, Homer avers that Ben's soulful "windows of his soul" are all that he needs to out-sheik and out-shriek Rodolph Valentino

Lost, Strayed or Stolen

Some time in July, somewhere in Southern California, in fact in the vicinity of Los Angeles, Ross Fisher's two-inch Carl Zeiss lens became lost, strayed or stolen The lens bears the number 386,005, and Ross will welcome its return or information that will lead to its recovery.

W. W. Johnstone Speaks

W W. Johnstone, of the Bausch and Lomb Optical Company, addressed the A. S C. open meeting of July 24. He spoke at length on photographic lens. His address was pronounced very interesting and was attentively received by the members. Several reels of education film were included in the program.

Returns to Los Angeles—Considers Offer

Robert S Newhard, A S. C., has returned to Los Angeles after an absence of six months in Spokane, during which time he served as cinematographer for Nell Shipman productions Bob is considering various offers to continue his cinematographic activities here.

David Abel, A S C, is photographing "Mixed Faces," starring William Russell, at the Fox studios

Bert Cann, A. S. C., is still sojourning in Europe The last card came from Vienna.

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Christmas Eve in Canada? A skilfully executed studio set? Neither! Photograph was taken in Los Angeles on July 13th

SUMMER SNOW IN THE SEMI-TROPICS

Asking for snow-covered streets in semi-tropical Los Angeles in mid-July is demanding a bit too much of Mother Nature, accomplished though she is, so Eddie Du Par and Floyd Jackman, A. S. C. members, relied on their wits and in doing so made it snow on the night of July 13 in the metropolis of Southern California.

Nature was thus embarrassed as the result of the requirements of certain episodes in "Little Heroes of the Street," a Harry Rapf production, directed by William Beaudine and James Hogan for Warner Brothers. The episodes in question damanded a Christmas eve snow scene in the streets of New York City. A set for such a purpose of course would have taken time and money.

How It Was Done

But the film ingenuity of Du Par and Jackman saved both. They filmed the passage at the corner of Court and New High streets, near the Hall of Records, in Los Angeles. Armed with a permit from the city, the Warner staff began at 8 o'clock on the evening of July 13th to distribute some 150 tons of salt on sidewalks, in gutters, on window sills and on fire escapes. Plaster of Paris ice-cles were pasted up. By this time, those of the passing pedestrians who were impressionable surely thought that they were raving through a mid-summer's night dream and some were even observed in the act of blowing their fingers in efforts to warm them. After power machines, which had been moved to the scene, were connected with several score of large lights, the characters enacted their various parts in the episode.

Double Exposure

But the effect of a whirling snow storm was still to be achieved. To have attempted to toss the snow into the scene from buildings surrounding the city corner, from which all the salt and other properties by terms of the municipal permit had to be cleared by 6 o'clock the next morning, would have required several nights' work. So Du Par and Jackman used studio paraphernalia for the driving snow and by means of double exposure, difficult though it was, obtained the desired effect to a degree much more realistic than they had anticipated, saving their company not a few hundred dollars in the affair, and once more proving their abilities as cinematographers.

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Rudolph Berquist, A. S. C., will be chief cinematographer for Metro's all-star "Quincy Adams Sawyer."

* * *

Phil Rosen, A. S. C., is conducting a great many tours these days, that is, in "The Young Rajah," the Paramount production which he is directing. He is whisking Rodolph Valentino, Wanda Hawley and others in the cast from the historic halls of Harvard to the orient which the title of the picture implies—on the Lasky lot, of course. He has reached the half-way post in the production.

* * *

Jimmy Van Trees, A. S. C., is recording with a trusty camera the results of Phil's good work.

* * *

Reginald E. Lyons has finished a six-reel picture, "Just Like a Woman," at Fine Arts studios.

He will now dust out his trunk and get ready to go to Dallas, Texas, to make some horse opera. This time Reggie will keep out of the way of southwestern bronchoes. His camera still bears the marks where a broncho kicked it, with Reggie, 18 feet in Oklahoma last summer.

* * *

Ben Kline, A. S. C., has completed photographing the latest Frank Mayo feature, which Stuart Paton directed.

* * *

E. B. Du Par and Floyd Jackman, A. S. C. members, are filming "Little Heroes of the Street," Warner Brothers production featuring Wesley Barry and Mary Prevost.

* * *

Bob Kurrle, A. S. C., has joined the Metro cinematographic staff and will film the special feature, "Country Love," featuring Billie Dove.

* * *

Tony Gaudio, A. S. C., is still grinding steadily in the filming of "East is West," starring Constance Talmadge.

* * *

Critics are acclaiming the photography of "Sonny," in which Richard Barthelmess is starred. Henry Cronjager, A. S. C., did it.

* * *

Karl Brown, A. S. C., is putting the finishing touches on "The Old Homestead," which is directed by James Cruze and features Theodore Roberts.

* * *

Paul Perry, A. S. C., has completed Paramount's "Pluk Gods," directed by Penrhyn Stanlaws. Before starting on his next production, Paul is receiving bids for his Debrie camera which is for sale.

* * *

Ira Morgan, A. S. C., continues to hold forth in New York, filming Marion Davies features.

* * *

Joseph A. Dubray, A. S. C., is filming "Three Cornered Kingdom," starring Ethel Clayton, at R. C.

* * *

Faxon Dean, A. S. C., is photographing Mary Miles Minter and Tom Moore in "The Cowboy and the Lady."

* * *

Walter Lundin, A. S. C., is filming Harold Lloyd and his horn-rims in "Doctor's Orders."

* * *

George Schneiderman, A. S. C., is on location filming "An Unexpected Wife," starring Shirley Mason.

Midnight. Several cameramen waiting at a dangerous railroad crossing. A train whistles in the distance. An instant before it reaches the crossing an automobile spurts into its path. Lewis Stone, actor, has leaped from the machine just in time. A crash. Disassembled parts flying in all directions. An automobile wheel ceases its sudden flight in the air and spins along the ground. A whizz and a lighter crash interrupts the steady "click, click" of one of the cameras. Camera parts strewn along the ground. Al Siegler, crank in hand—all that remains of his machine—looking dumb founded. Jackson Ross chuckling as he continues to crank his own outfit. The murdered automobile, through its wheel, had wreaked its revenge. One of the infernal machines had been destroyed; its perpetrator had been humiliated—laughed at.

Jackson Rose, A. S. C., vouches that the foregoing, with Al Siegler, A. S. C., as the victim, transpired during the filming of a wreck scene in "The Dangerous Age."

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Hans Hoenakamp, A. S. C., has finished Larry Semon's comedy, "Golf."

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Dal Clawson, A. S. C., is announced as chief cinematographer for Principal Pictures.

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Herford Tynes Cowling, A. S. C., globe trotter, leaves August 25th to film the Theodore Roosevelt trail country in Africa.

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A small army of cinematographers has been associated with Arthur Edeson in the filming of the big scenes in Fairbanks' "Robin Hood."

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Allen M. Davey, A. S. C., is photographing a Gladys Walton feature at Universal.

* * *

Fred Jackman, president of the A. S. C., is putting the finishing touches on the Mack Sennett comedy, "Bow Wow," which he is co-directing with O'Hara.

* * *

Due to a production schedule which will keep him absent from Los Angeles intermittently for some time ahead, and which will encroach upon his attendance at the board of governors' meetings, Walter L. Griffin steps out of his place on that board in favor of Kenneth G. MacLean, who will assume Griffin's duties. Griffin has left for Alaska to serve as chief cinematographer for David M. Hartford productions.

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Ross Fisher, A. S. C., is shooting Bertram Bracken productions at the Hollywood studios.

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Steve Norton, A. S. C., is now a member of the Cinematographic staff at the Sennett studios.

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Charles Rosher and H. Lyman Broening, both A. S. C. members, are finishing photographing "Tess," which has been in production for more than three months.

* * *

George Meehan and Georges Rizard, both A. S. C. members, are making preparations for the filming of "The Girl I Love," a Charles Ray production.

Where to Find the Members of the

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Davey, Allen M—with Gladys Walton Universal Studio
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DuPar E B—with Warner Brothers
Edeson Arthur—with Douglas Fairbanks, Fairbanks-Pickford Studio
Evans, Perry—with Mack Sennatt Productions Sennett Studio
Fildew, William—with Universal
Fisher, Ross G—with Bert Bracken Hollywood Studio
Foster Wm C—
Fowler Harry M—
Gaudio Tony G—with Joseph Schenck Productions-Constance Talmadge United
Gilks A L—with Sam Woods, Gloria Swanson Lasky Studio
Good Frank B—with Jackie Coogan United Studio.
Granville Fred L—with British International Corp, London
Gray King D—
Griffin, Walter L—with David M Hartford Prods
Guissart Rene—with Harley Knoles in charge of photography London
Heimerl Alois G—
Jackman Floyd—with Warner Brothers
Jackman Fred W—Supervising Cinematographer, Mack Sennett Studio
Klaffki Roy H—Director of Photography, Metro Studio
Kline Ben H—with Universal
Koenekamp Hans F—with Larry Semon, Vitagraph Studio
Kull, Edward—
Kurrle Robert—with Metro Studio
Lockwood J R—
Lundin Walter—with Harold Lloyd, Roach Studio
Lyons Reginald E—
MacKenzie Jack—with Chester Bennett United Studio
MacLean, Kenneth G—with Century Comedies, Century Studio
Meehan George—with Charles Ray, Ray Studio
Miller Virgil E.—with Universal
Milner Victor—with Universal
Morgan Ira H—with Marion Davies, International, New York
Newhard Robert S—with Nell Shipman Productions, Spokane, Washington
Norton, Stephen S—with Mack Sennett Productions, Sennett Studio
Overbaugh Roy F—with Richard Barthelmess, New York City
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Perry Paul P—with Penrhyn Stanlaws Lasky Studio
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Rizard Georges—with Charles Ray Ray Studio
Rose, Jackson—with John Stahl, Mayer Studio
Rosen Philip E—Directing Rudolph Valentino, Lasky Studio
Rosher Charles—with Mary Pickford Pickford-Fairbanks Studio
Schnenbaum Chas. E—with Lasky Studio
Schneiderman George—with Fox Studio
Scott Homer A—with Mack Sennett Productions, Sennett Studio
Seitz John F—with Rex Ingram Metro Studio
Siegler Allen—
Sharp Henry—with Ince Ince Studio
Short Don—with Fox Studio
Smith Steve Jr—with Vitagraph Studio
Stumar Charles—with Eddie Laemmle Europe
Totheroh Rollie H—with Charlie Chaplin Chaplin Studio
Van Trees James C—with Phil Rosen Rudolph Valentino Lasky Studio
Van Enger, Charles—with Maurice Tourneur Goldwyn
Walter R W—with Mack Sennett Productions, Sennett Studio
Warrenton, Gilbert—with Alice Brady Lasky, in New York
Whitman Philip H—with Universal Experimental Department
Wilky L Guy—with William De Mille Lasky Studio

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LOYALTY PROGRESS ART

Hotel Astor
New York

June 14, 1922.

Mitchell Camera Company,
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